ABSTRACT

A photoacoustic ozone detector includes an acoustic chamber, an ultraviolet light source, and a detector to detect audio signals. The acoustic chamber has an inlet for receiving a gas mixture containing ozone and an outlet for removing the gas mixture from the chamber. The ultraviolet light source generates ultraviolet light having wavelengths shorter than 400 nm, and the ultraviolet light is modulated at a modulation frequency substantially equal to a resonant frequency of the acoustic chamber. The ultraviolet light source is positioned relative to the acoustic chamber so that the ultraviolet light passes through the gas mixture in the acoustic chamber. The detector detects an audio signal in the acoustic chamber having a frequency substantially equal to the modulation frequency of the ultraviolet light. A signal processor generates an output indicative of a concentration of the ozone in the gas mixture based on the detected audio signal.

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